Amendments to th Claims

This listing of claims will replace all prior versions, and listings of claims in the application:

Listing of Claims:

Claims 1-34. (canceled)

Claim 35. (currently amended) An isolated polynucleotide comprising:

(a) a nucleotide sequence encoding a polypeptide having delta-5 acyl-CoA desaturase activity, wherein the polypeptide has an amino acid sequence of ~~at least 80% sequence identity, based on the Clustal alignment method, when compared~~ to SEQ ID NO:2, or

(b) the full complement of the nucleotide sequence.

Claim 36-38. (canceled)

Claim 39. (previously presented) A vector comprising the polynucleotide of Claim 35.

Claim 40. (previously presented) A method for transforming a cell comprising transforming a cell with the polynucleotide of Claim 35.

Claim 41. (previously presented) A method for producing a plant comprising transforming a plant cell with the polynucleotide of Claim 35 and regenerating a plant from the transformed plant cell.

Claim 42. (previously presented) A plant comprising the chimeric gene of Claim 35.

Claim 43. (previously presented) A seed comprising the chimeric gene of Claim 35.

Claim 44. (previously presented) A method for isolating a polypeptide encoded by the polynucleotide of Claim 35 comprising isolating the polypeptide from a cell containing a chimeric gene comprising the polynucleotide operably linked to a regulatory sequence.

Claim 45. (previously presented) The isolated polynucleotide of Claim 35 wherein the nucleotide sequence comprises SEQ ID NO:1.

Claim 46. (previously presented) A chimeric gene comprising the nucleic acid fragment of Claim 35 operably linked to a regulatory sequence.

Claim 47. (previously presented) A transformed host cell comprising the chimeric gene of Claim 46.

Claim 48. (previously presented) A method of altering the level of expression of a delta-5 acyl-CoA desaturase in a host cell comprising:

(a) transforming a host cell with the chimeric gene of Claim 46; and
(b) growing the transformed host cell produced in step (a) under conditions that are suitable for expression of the chimeric gene

wherein expression of the chimeric gene results in production of altered levels of a delta-5 acyl-CoA desaturase in the transformed host cell.

Claim 49. (previously presented) A method of producing a desaturated fatty acid comprising a double bond in the delta-5 position in a host cell, the method comprising:

(a) transforming a host cell with the chimeric gene of Claim 46; and
(b) growing the transformed host cell produced in step (a) under conditions that are suitable for expression of the chimeric gene

wherein expression of the chimeric gene results in production of a desaturated fatty acid comprising a double bond in the delta-5 position.

Claim 50. (previously presented) A method of producing seed oil comprising a desaturated fatty acid wherein the fatty acid comprises a double bond in the delta-5 position, the method comprising:

(a) transforming a plant cell with the chimeric gene of Claim 46;
(b) growing a fertile plant from the transformed plant cell of step (a);
(c) obtaining a seed from the plant of step (b); and
(d) processing the seed of step (c) to obtain oil

wherein the oil comprises a desaturated fatty acid wherein the fatty acid comprises a double bond in the delta-5 position.

Claim 51. (previously presented) The method of Claim 50 wherein the plant cell is derived from an oilseed crop.

Claim 52. (previously presented) The method of Claim 51 wherein the oilseed crop is soybean.